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09/809,106	03/16/2001	Hiroshi Yamada	010283	8939

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EXAMINER	
TRUJILLO, JAMES K	
ART UNIT	**PAPER NUMBER**
2116	

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/809,106	YAMADA ET AL.	
	Examiner	Art Unit	
	James K. Trujillo	2116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,5,7,8,10,13,14 and 17* is/are rejected.

7)☒ Claim(s) *2,3,6,9,11,12,15 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The office acknowledges the receipt of the following and placed of record in the file:

2. Claims 1-17 are presented for examination.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/13/06 has been entered.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 4-5, 7-8, 10, 13-14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunstan et al., U.S. Patent 5,964,879 in view of Senator, U.S, Patent 5,809,303.

6. Regarding claim 1, Dunstan teaches an information device having means for supplying power to a plurality of its components including an OS and a driver (Operating system 88

wherein it is inherent that the OS has a driver in order to communicate with the rest of the system, figure 5) and a device driver (device drive 98), the information device (computer systems 10 and 50 figures 1 and 4) characterized by comprising:

a. means for monitoring a predetermined single one or a number of said components from predetermined single one or a number of said components, and for detecting peak-power generating condition and peak- power terminating condition for the monitored components (storage for a power characterization table for the devices, power coordinator and power budgeter, col. 4, lines 19-25, col. 6, lines 35-47);

b. power-mode changing means for switching mode of power, predetermined single one or a number of said components, from a normal-power mode to a power saving mode (standby mode) according to detected information from said monitoring means on said peak-power generating condition (required power not available), and for switching the power mode from said power-saving mode to said normal-power mode according to detected information from said access monitoring means on said peak-power terminating condition (the power budgeter determines a peak-power condition "lack of available power" and switching one of the other components "other devices" into an off mode or a standby mode, col. 9, lines 30-41). Dunstan implicitly teaches wherein switching the power mode from said power-savings mode to said normal-power mode on said peak-power terminating condition (col. 2, lines 5-9, col. 8, line 64 through col. 9 line 9, figure 7). Specifically, Dunstan further teaches that peak-power conditions are temporary, such a starting up a disk. One of ordinary skill would understand that the components that are placed in a power-saving mode would be placed back in the normal-power mode when

the peak-power generation condition is terminated in order to provide any functionality lost during the peak-power generation condition;

c. wherein said monitoring means monitors between said OS and driver, and said device driver (power coordinator 90).

Dunstan does not explicitly disclose wherein the monitoring means ***is an access monitoring means for monitoring IO packets*** from said predetermined single one or a number of said components [emphasis added].

Senator teaches an access monitor means for monitoring IO packets (IO metrics including one or calls, col. 2, lines 7-26) wherein said access monitoring means monitors said IO packets between an OS and driver and a device driver. Senator further teaches providing the advantage of allowing IO statistics to be presented to application-level software operating in conjunction with a computer operating system which facilitates the identification of storage device hot spots (col. 1, lines 48-57).

It would have been obvious to one of ordinary skill in the art, having the teachings of Dunstan and Senator before them at the time the invention was made, to modify the monitoring means of Dunstan to include the access monitoring means for monitoring IO packets as taught by Senator.

One of ordinary skill in the art would have been motivated to make this modification in order to achieve the advantage of allowing IO statistics to be presented to application-level software in order for identification of storage device hot spots.

7. Regarding claim 4, Dunstan together with Senator taught the information device according to claim 1, as described above. Dunstan further teaches wherein at least one of said monitored components is a processor (controller inherently in disk subsystems 64 and 66) characterized in that the monitoring means is configured for detecting as the peak-power generating condition a rate surpassing a set value (power for requesting device is not available, col. 9, lines 30-41) and detecting as the peak-power terminating condition a rate dropping below a set value (implicitly, after power is available).

Senator teaches wherein the access monitoring means are configured for finding use rate (how many IO operation it has outstanding, the size of the operations and bookkeeping, col. 4, lines 6-19) for the processor.

8. Regarding claim 5 and 7, Dunstan together with Senator taught the claimed information device. Therefore together they also teach the claimed method for using the information device.

9. Regarding claim 8, Dunstan together with Senator taught the claimed information device. Therefore together they also teach the claimed recording medium for storing the claimed program.

10. Regarding claim 10, Dunstan teaches a information device having means for supplying power to a plurality of its components, the information device characterized by comprising:

a. means for monitoring components which are monitored among said plurality of components, and for detecting peak-power generating condition and peak- power terminating condition for the monitored components (storage for a power characterization

table for the devices, power coordinator and power budgeter, col. 4, lines 19-25, col. 6, lines 35-47);

b. power-mode changing means for switching mode of power, to the components which are not monitored among said plurality of components (col. 7, lines 56-60), from a normal-power mode to a power saving mode (places other devices into a steady power state, col. 7, lines 61-66) according to detected information from said monitoring means on said peak-power generating condition (amount of power available to the system to satisfy the power allocation request, col. 7, lines 48-55), and for switching the power mode from said power-saving mode to said normal-power mode according to detected information from said access monitoring means on said peak-power terminating condition (the power budgeter determines a peak-power condition "lack of available power" and switching one of the other components "other devices" into an off mode or a standby mode, col. 9, lines 30-41). Dunstan implicitly teaches wherein switching the power mode from said power-savings mode to said normal-power mode on said peak-power terminating condition (col. 2, lines 5-9, col. 8, line 64 through col. 9 line 9, figure 7). Specifically, Dunstan further teaches that peak-power conditions are temporary, such a starting up a disk. One of ordinary skill would understand that the components that are placed in a power-saving mode would be placed back in the normal-power mode when the peak-power generation condition is terminated in order to provide any functionality lost during the peak-power generation condition.

c. wherein said monitoring means monitors between said OS and driver, and said device driver (power coordinator 90).

Dunstan does not disclose wherein the monitoring means ***is an access monitoring means*** [emphasis added].

Senator teaches an access monitor means for monitoring IO packets (IO metrics including one or calls, col. 2, lines 7-26) wherein said access monitoring means monitors said IO packets between an OS and driver and a device driver. Senator further teaches providing the advantage of allowing IO statistics to be presented to application-level software operating in conjunction with a computer operating system which facilitates the identification of storage device hot spots (col. 1, lines 48-57).

It would have been obvious to one of ordinary skill in the art, having the teachings of Dunstan and Senator before them at the time the invention was made, to modify the monitoring means of Dunstan to include the access monitoring means for monitoring IO packets as taught by Senator.

One of ordinary skill in the art would have been motivated to make this modification in order to achieve the advantage of allowing IO statistics to be presented to application-level software in order for identification of storage device hot spots.

11. Regarding claim 13, Dunstan together with Senator taught the information device according to claim 10, as described above. Dunstan further teaches wherein at least one of said monitored components is a processor (controller inherently in disk subsystems 64 and 66) characterized in that the monitoring means is configured for detecting as the peak-power generating condition a rate surpassing a set value (power for requesting device is not available, col. 9, lines 30-41) and

detecting as the peak-power terminating condition a rate dropping below a set value (implicitly, after power is available).

Senator teaches wherein the access monitoring means are configured for finding use rate (how many IO operation it has outstanding, the size of the operations and bookkeeping, col. 4, lines 6-19) for the processor.

12. Regarding claim 14, Dunstan together with Senator taught the claimed information device therefore together they also teach the claimed method.

13. Regarding claim 17, Dunstan together with Senator taught the claimed information device and method therefore together they also teach the claimed recording medium that stores a

Also, as per the previous office action:

14. Claims 1, 4-5, 7-8, 10, 13-14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunstan et al., U.S. Patent 5,964,879 in view of Hetzler, U.S, Patent 5,954,820.

15. Regarding claim 1, Dunstan teaches an information device having means for supplying power to a plurality of its components including an OS and a driver (Operating system 88 wherein it is inherent that the OS has a driver in order to communicate with the rest of the system, figure 5) and a device driver (device drive 98), the information device (computer systems 10 and 50 figures 1 and 4) characterized by comprising:

a. means for monitoring components from predetermined single one or a number of said components, and for detecting peak-power generating condition and peak- power

terminating condition for the monitored components (storage for a power characterization table for the devices, power coordinator and power budgeter, col. 4, lines 19-25, col. 6, lines 35-47);

b. power-mode changing means for switching mode of power, predetermined single one or a number of said components, from a normal-power mode to a power saving mode (standby mode) according to detected information from said monitoring means on said peak-power generating condition (required power not available), and for switching the power mode from said power-saving mode to said normal-power mode according to detected information from said access monitoring means on said peak-power terminating condition (the power budgeter determines a peak-power condition "lack of available power" and switching one of the other components "other devices" into an off mode or a standby mode, col. 9, lines 30-41). Dunstan implicitly teaches wherein switching the power mode from said power-savings mode to said normal-power mode on said peak-power terminating condition (col. 2, lines 5-9, col. 8, line 64 through col. 9 line 9, figure 7). Specifically, Dunstan further teaches that peak-power conditions are temporary, such a starting up a disk. One of ordinary skill would understand that the components that are placed in a power-saving mode would be placed back in the normal-power mode when the peak-power generation condition is terminated in order to provide any functionality lost during the peak-power generation condition;

c. wherein said monitoring means monitors between said OS and driver, and said device driver (power coordinator 90).

Dunstan does not disclose wherein the monitoring means ***is an access monitoring means for monitoring IO packets*** from said predetermined single one or a number of said components [emphasis added].

Hetzler teaches an access monitoring means for monitoring IO packets (accesses are interpreted include IO packets and detection of accesses inherently requires an access monitoring means, col. 2, line 63 through col. 3, line 11, col. 8 lines 1-29 and col. 8, line 52 through col. 9, line19). The access monitoring means of Hetzler provide the advantage of improved performance because the user will not see the latency and improved energy savings because power modes can be entered with shorter delays (col. 8, lines 58-64).

It would have been obvious to one of ordinary skill in the art, having the teachings of Dunstan and Hetzler before them at the time the invention was made, to modify the monitoring means of Dunstan by using the access monitoring means as taught by Hetzler in order to obtain an access monitoring means to detect peak-power generating and terminating conditions (by including the access monitoring means or Hetzler within the power coordinator of Dunstan). In using the teaching of Hetzler in Dunstan, the power changing would be applied to components (such as an LCD display), which are not monitored. Specifically, Dunstan suggests wherein a display should have its backlight reduced rather than be turned off during a disk drive operation to improve performance (col. 2, lines 23-35 and col. 3, lines 52-58).

One of ordinary skill in the art would have been motivated to make the modification in order to achieve the advantages of improved performance and improved energy savings in view of the teachings of Hetzler.

16. Regarding claim 4, Dunstan together with Hetzler taught the information device according to claim 1, as described above. Dunstan further teaches wherein at least one of said monitored components is a processor (controller inherently in disk subsystems 64 and 66) characterized in that the monitoring means is configured for detecting as the peak-power generating condition a rate surpassing a set value (power for requesting device is not available, col. 9, lines 30-41) and detecting as the peak-power terminating condition a rate dropping below a set value (implicitly, after power is available).

Hetzler teaches wherein the access monitoring means are configured for finding use rate (access frequencies) for the processor (wherein the processor is IDE controller 6, which controls data transfer for a disk drive, col. 4, lines 42-44 and col. 8, lines 30-64).

17. Regarding claim 5 and 7, Dunstan together with Hetzler taught the claimed information device. Therefore together they also teach the claimed method for using the information device.

18. Regarding claim 8, Dunstan together with Hetzler taught the claimed information device. Therefore together they also teach the claimed recording medium for storing the claimed program.

19. Regarding claim 10, Dunstan teaches a information device having means for supplying power to a plurality of its components, the information device characterized by comprising:

a. means for monitoring components which are monitored among said plurality of components, and for detecting peak-power generating condition and peak- power terminating condition for the monitored components (storage for a power characterization table for the devices, power coordinator and power budgeter, col. 4, lines 19-25, col. 6, lines 35-47);

b. power-mode changing means for switching mode of power, to the components which are not monitored among said plurality of components (col. 7, lines 56-60), from a normal-power mode to a power saving mode (places other devices into a steady power state, col. 7, lines 61-66) according to detected information from said monitoring means on said peak-power generating condition (amount of power available to the system to satisfy the power allocation request, col. 7, lines 48-55), and for switching the power mode from said power-saving mode to said normal-power mode according to detected information from said access monitoring means on said peak-power terminating condition (the power budgeter determines a peak-power condition "lack of available power" and switching one of the other components "other devices" into an off mode or a standby mode, col. 9, lines 30-41). Dunstan implicitly teaches wherein switching the power mode from said power-savings mode to said normal-power mode on said peak-power terminating condition (col. 2, lines 5-9, col. 8, line 64 through col. 9 line 9, figure 7). Specifically, Dunstan further teaches that peak-power conditions are temporary, such a starting up a disk. One of ordinary skill would understand that the components that are placed in a power-saving mode would be placed back in the normal-power mode when the peak-power generation condition is terminated in order to provide any functionality lost during the peak-power generation condition.

c. wherein said monitoring means monitors between said OS and driver, and said device driver (power coordinator 90).

Dunstan does not disclose wherein the monitoring means ***is an access monitoring means*** [emphasis added].

Hetzler teaches an access monitoring means for monitoring information on access to components (detection of accesses inherently requires an access monitoring means, col. 2, line 63 through col. 3, line 11, col. 8 lines 1-29 and col. 8, line 52 through col. 9, line19). Hetzler further teaches that some components (LCD display) cannot have their accesses monitored because of difficulty in such type of monitoring. The access monitoring means of Hetzler provide the advantage of improved performance because the user will not see the latency and improved energy savings (col. 8, lines 58-64).

It would have been obvious to one of ordinary skill in the art, having the teachings of Dunstan and Hetzler before them at the time the invention was made, to modify the monitoring means of Dunstan by using the access monitoring means as taught by Hetzler in order to obtain an access monitoring means to detect peak-power generating and terminating conditions (by including the access monitoring means or Hetzler within the power coordinator of Dunstan). In using the teaching of Hetzler in Dunstan, the power changing would be applied to components (such as an LCD display), which are not monitored. Specifically, Dunstan suggests wherein a display should have its backlight reduced rather than be turned off during a disk drive operation to improve performance (col. 2, lines 23-35 and col. 3, lines 52-58).

One of ordinary skill in the art would have been motivated to make the modification in order to achieve the advantages of improved performance and improved energy savings in view of the teachings of Hetzler.

20. Regarding claim 13, Dunstan together with Hetzler taught the information device according to claim 10, as described above. Dunstan further teaches wherein at least one of said monitored components is a processor (controller inherently in disk subsystems 64 and 66) characterized in that the monitoring means is configured for detecting as the peak-power generating condition a rate surpassing a set value (power for requesting device is not available, col. 9, lines 30-41) and detecting as the peak-power terminating condition a rate dropping below a set value (implicitly, after power is available).

Hetzler teaches wherein the access monitoring means are configured for finding use rate (access frequencies) for the processor (wherein the processor is IDE controller 6, which controls data transfer for a disk drive, col. 4, lines 42-44 and col. 8, lines 30-64).

21. Regarding claim 14, Dunstan together with Hetzler taught the claimed information device therefore together they also teach the claimed method.

22. Regarding claim 17, Dunstan together with Hetzler taught the claimed information device and method therefore together they also teach the claimed recording medium that stores a program of the method.

Response to Arguments

23. Applicant's arguments filed 2/13/06 have been fully considered but they are not persuasive.

24. Applicant argues in substance that the Hetzler monitors signal of a hardware module rather than between an OS and driver and said device driver. The examiner agrees with applicant on this argument. However, Hetzler is not relied upon (in the Dunstan/Hetzler combination) to teach that the monitoring is between an OS and driver and said device driver. As combined with

Dunstan, the monitoring would be part of power coordinator 90 (see figure 5) in Dunstan, as the power coordinator monitors other conditions of the system. The power coordinator of Dunstan is clearly in software and between an OS and driver and device drivers. Also, a rejection combining Dunstan and Senator is provided in which this argument is moot.

25. Applicant argues in substance that IO packets in the instant application are equivalent to the "I/O Request Paper". It appears that the Applicant is arguing that the IO packets must be consider in more detail with regards to the "I/O Request Paper". However, more details of the IO packets cannot be considered by the examiner since the detail was not provided in the original application. Even if considered, it appears that the "I/O Request Paper" teaches that an IO packet is the basis of all transactions in an I/O system. Thus, any transaction (such as an access) in Hetzler would be considered an IO packet. If the applicant believes that more detail of an IO packet, as per the "I/O Request Paper", would distinguish the claimed invention from the prior art of record, the examiner respectfully suggests that the Applicant file a Continuation in Part of the instant application with the distinguishing details in order for them to be considered.

Allowable Subject Matter

26. Claims 2-3, 6, 9, 11-12 and 15-16 as per the previous office action are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James K. Trujillo whose telephone number is (571) 272-3677. The examiner can normally be reached on M-F (8:00 am - 5:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (571) 272-3670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James K. Trujillo
4/18/06

James K. Trujillo
Patent Examiner
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